

QUALITY CONTROL PLAN

Upper Mississippi River (UMR) Headwater Reservoirs Project

Study: Operating Plans for UMR Headwaters Reservoirs – O&M Project i.e., Headwaters Reservoir Operations Plan Evaluation (ROPE)

PURPOSE:

The purpose of the study is to identify an operating plan for the Corps of Engineers operated Headwaters Reservoirs with consideration given to flood control, environmental concerns, water supply, tribal trust, recreation, navigation, hydropower, water quality, and other purposes to meet the objectives identified in the plan of study. This plan would then replace the existing operations plans that were last formulated about 40 years ago. This ROPE plan should protect the tribal trust relationship and provide the optimum benefit to the many interests affected by the operation of these dams -- for the greater public good.

In addition to the 6 Corps of Engineers Headwaters Reservoirs and the Upper Mississippi River, the operation of United States Forest Service (USFS) Knutson Dam at Cass Lake will be fully evaluated in this study and evaluation of the Stump Lake Dam, which creates Lake Bemidji and Mud Lake Dam, which creates the Mud/Goose Lake area are to be included as part of the systemwide ROPE evaluation. Recommended changes in the design and operation of the Knutson Dam will be evaluated in the study and assessed in the NEPA documentation for this ROPE. Partnering with the USFS will be accomplished to realize this purpose. Operation of the Stump Lake Dam by Ottetail Power and the Mud Lake Dam by the Minnesota Department of Natural Resources have agreed to assist in this systemwide evaluation. Therefore, to the extent that resources permit, a systemwide and comprehensive optimization for operation of all interconnected Headwater Lakes and the Mississippi River will be pursued (i.e., a number of non-Corps dams which are operated by the US Forest Service, Minnesota DNR, and Ottetail Power are to be included in this systemwide operations evaluations – to extent possible within resources constraints).

OBJECTIVE:

The overall objective of the ROPE Study will be to define a systemwide operations plan that improves stewardship of the headwater reservoirs, sustains the natural environment, fully considers Tribal interests, fairly balances public use of resources, and fully consider impacts associated with any changes on operations.

The object of the economic, environmental, and engineering, and tribal interests inventories and analysis done as part of this ROPE is to gather enough data to model the net effect or changes that result from different operating plans on project outputs from a national economic development (NED), an environmental quality (EQ), and regional perspective (including Tribal perspective). Consideration should be given to the fact that some of the outputs are quantitative and some are qualitative, some are of a local or regional focus, some of the outputs may have a higher priority than others, and that there will be tradeoff's involved. To adequately screen and select the systemwide operations plan, an optimization and a simulation model will be used as part of a shared vision planning process. Various impacts of developed

alternatives will be identified by comparing the existing and/or base condition with the anticipated conditions associated with any given operational alternative. The process used to identify alternatives, screen alternatives, and select alternatives will be based on a planning process that seeks to include and involve all stakeholders, managing agencies, and the public (the planning process to be used will seek public, stakeholder, and agency inputs and reviews at numerous strategic points and will seek final recommendations that have consensus and synergy).

The reservoir operating management entities in the headwaters will be working closely to integrate their operational considerations into a systemwide framework and the resulting operations plans are intended to fairly serve the public throughout the study area. This cooperative and inclusive planning process is intended to foster what is sometimes referred to as a "Shared Vision Plan".

After the ROPE planning fully evaluates the various systemwide alternatives, it is ultimately the St. Paul District Engineer who will make a recommendation regarding the Corps operations at the 6 reservoirs where his jurisdiction lies. Similarly, the Chippewa National Forest Supervisor will evaluate alternatives associated with their operations at Knutson Dam and the Ottertail Power Company and the State of Minnesota will make decisions regarding their reservoir operations at the Stump Lake Dam and at the Mud Lake Dam respectively.

BACKGROUND AND PLAN FORMULATION SCOPE:

HISTORY: Construction of the Corps/Federal dams at each of the six Mississippi River headwaters lakes was authorized by the River and Harbor Acts of June 14, 1880 and August 2, 1882. The primary purpose for the operation of these dams is to facilitate low flow augmentation for navigation consistent with Federal Tribal trust responsibilities but other purposes have since been added – including flood reduction, fish and wildlife conservation, recreation, and hydropower. In 1918, J. Neils Lumber Company constructed a small dam at the outlet of Cass Lake. After completion of their lumbering operations, Neils no longer needed the dam. In 1926, Public Law 270 gave the responsibility for operating and maintaining the dam to the US Forest Service. Today Knutson Dam is managed to maintain lake levels that allow for recreational navigation.

OPERATING OUTPUTS: The prime goal of the proposed systemwide ROPE Study will be on improving regulation of the Corps of Engineers Headwaters Reservoirs including Leech, Winnibigoshish, Sandy, Pine (Whitefish chain), Pokegama, and Gull (note: Knutson Dam and the associated Cass Lake impoundment will also be included in the evaluation and recommendations documented by this study). The existing Headwaters Corps and Forest Service dams' and reservoirs' regulations and associated natural resources management plans are to be examined. Targets for reservoir water levels and river discharge would be set for points in the system for different times of year based on consultations with stakeholders. The emphasis will be on meeting current and projected future needs for:

- Navigation (to the very limited extent that it is still a Federal mission)
- Tribal trust resources (including wild ricing, fishing, hunting, and other Tribal interests)

- Flood damage reduction (reductions in flood damages around the lakes and downstream)
- Fish and wildlife habitat enhancement, restoration, and preservation for lake and river related habitats
- Recreation – and related tourism
- Water quality, water supply (flow augmentation), and drought reduction
- Erosion and Sedimentation (attempting to reduce lake and riverine damages)
- Hydropower electrical production
- Sustain hydrologic flow function on associated lakes and rivers

SYSTEMWIDE OPERATION GOALS: There is also a strong desire to extend reservoir operational planning to adjacent controlled lakes (Lake Bemidji, Stump Lake Dam - Operated by Ottertail Power Company, and Mud/Goose Lake – Mud Lake Dam Operated by the Minnesota DNR) to optimize the lake regulation and make operations more systemwide, comprehensively, and holistically. In order to make the final ROPE study fully supported by the public, stakeholders, and agencies, more inclusive resources inventories evaluations will be accomplished outside the prime geographic focus area to include adjacent non-Corps operated lakes and adjacent lakes affected by the Corps operations. This is also needed because Corps operations can affect adjacent lakes. This inclusive systemwide operations goal/approach will be used to the extent that the Corps can secure cooperation and adequate resources. However, the findings and recommendations of this ROPE study will focus primarily on changes in operations for Corps, Forest Service, and to a lesser extent on other system reservoir plans. Structural/physical and environmental improvements conceptualized and recommended as a result of this study are expected to range in cost from \$5 million to \$25 million of construction and/or associated land acquisition. The nature of such construction and possible land acquisition will be defined and fully coordinated during the study. But, it is anticipated that some physical changes in the design of some of the existing dams may be needed to improve operations and that acquisition of a few small areas where flooding regularly occurs may be needed to fully realize the potential of an optimized operating plan. Accordingly, it is assumed that the outcomes of this plan could have a significant real or perceived affect upon the human or natural environments.

LAKE AND SYSTEM CONSTRAINTS: In order to better understand the potential array of alternative operating plans, the operational variables that would provide the physical constraints to operations need to be summarized and their associated limitations known. The most obvious of these are the location of the dams themselves and the design capacity of each to release water. Other physical factors to analyze are the downstream channel capacities and the potential rate of lake drawdown (i.e., how fast could the lake level be lowered, given the capacity of the dam, and how fast can the lake level rise, given the drainage area upstream of the structure). These are physical variable with operationally limiting relationships that are important to understand and integrate into the plan formulation models that will be used to evaluate alternatives. These relationships will be analyzed and modeled during the ROPE formulations. These relationships will also be important to describe in the report documentation because they are the physical constraints to controlling and balancing flooding in the study area and determine the extent of water control that is possible.

OPERATING RULES AND GUIDELINES: There are a number of targets or flow needs that have been established by previous reservoir operations plans that affect or constrain operations.

These operational aspects are similar to the physical constraints list above in that they affect the rate and timing of water releases possible. These operating rules and guidelines need to be re-evaluated and may need to be adjusted during this ROPE Study. The following is a listing of these operating rules and/or guidelines:

- 1. MDNR Minimum Flow Guidelines – in stream flow needs:** Minimum flow guidelines for each reservoir were provided in the 1960's by the MDNR to meet the in-stream flow needs. In some cases this flow requirement conflicts with the Federal annual flow requirement (see below).
- 2. Federal Minimum Annual Flow Requirement:** The flow needs based on an annual flow basis were set in the 1930's also need to be re-evaluated. In some cases this flow requirement conflicts with the MDNR minimum flow guidelines (see above).
- 3. Reservoir outflow rate-of-change rules:** The rate-of-change in outflow rules for the dams were adopted in the 1960's. These need to be re-evaluated during the ROPE. This is related to in-stream flow considerations and downstream safety concerns. It can also affect flood control operations.
- 4. Maximum flow guidelines:** Maximum flow guidelines as a function of lake level for each reservoir were provided in the 1960's by the MDNR. These guidelines are rarely used and should be re-evaluated in the ROPE.
- 5. Winter Drawdown:** Currently, many of the reservoirs in the system have fall and winter drawdowns to provide extra storage capacity to capture spring rains and snowmelt and reduce the risk of flooding (and possibly ice damage). The drawdown reverses the hydrologic cycle, which damages the ecosystem.
- 6. Summer Band adjustments:** A wider summer operating band at both Gull and Leech has been suggested as a way to optimize operations.
- 7. Combined Flow Guideline below Winnibigoshish and Leech:** The combined outflow from Winnibigoshish and Leech is restricted to not more than 2,200 cfs. This can contribute to high water on Winnibigoshish and Leech as well on the Cass Lake Chain of Lakes. The utility of this guideline should be re-evaluated in the ROPE.

SCOPE OF ALTERNATIVES: The array of alternatives to be evaluated will fall into three groups of alternatives; 1) evaluations to establish existing conditions and future conditions (with the current operations) – this is the No Change alternative, 2) evaluations of operating plans for individual lake chains (not considering the systemwide affects or downstream affects of operations), and 3) evaluations of operating plans for systemwide reservoir operations which fairly balance benefits and impacts of reservoir operations.

ARRAY OF ALTERNATIVE OPERATING PLANS AND EVALUATION FACTORS:

There are a number of possible alternative operating plans. This array of alternative plans and evaluation measures that will be integrated into the plan formulation and screening process. These have been identified as the result of past interagency/public inputs, recent coordination

with stakeholders, and professional knowledge from the Project Delivery Team. Additional operational plans and evaluation measures will be identified as the result of interagency coordination and the optimization modeling done as part of the ROPE formulation HEC-PRM modeling. The key alternative operating plans to be evaluated include formulation of operating plans that would:

- Assess and document the No Action/Without change condition. This strategy would maintain the status quo.
- Balance and/or optimize to reduce flood damages and related impacts – balance upstream and downstream tradeoffs and foster fairness. This strategy assumes that flood control is the most critical output of the systemwide operations. The following are some examples of possible flood control operational alternatives.

Alternative No. 1, 1a, 1b. Etc.: Regulate the Headwaters Reservoirs under the present operating plan without regard for flood control at Aitkin, Ball Club Lake and other places. Conduct normal drawdowns

Alternative No. 2, 2a, 2b etc.: Regulate the Headwaters Reservoirs under the present operating plan without regard for flood control at Aitkin, Ball Club Lake and other places. Test the effects of different drawdown levels to include eliminating the drawdown. Test the effects of different channel capacity restrictions between Winni/Leech and Pokegama (restriction is currently 2,200 cfs). How does raising the 2200 value affect high water on the Cass Lake Chain? (it should help).

Alternative No. 3, 3a, 3b etc: Regulate the Headwaters Reservoirs under the present operating plan with consideration for flood control at Aitkin, Ball Club Lake and other places. Test the effects of different drawdown levels to include eliminating the drawdown. Test the effects of different channel capacity restrictions between Winni/Leech and Pokegama. How does raising the 2200 value affect high water on the Cass Lake Chain?

Consider defining operating rules that would only focus on reducing downstream flooding during major downstream floods; This would involve defining operating rules that would allow holding back reservoir releases for short times under very infrequent major flood events in downstream areas such as Aitkin. The intent would be to operate so as to reduce the peak stages for floods in the 50-year or greater frequency.

- Optimize and/or sustain natural resources and habitats and avoid environmental impacts by mimicking the natural flow regimes for lake and river segments. This would involve operations that would mimic nature (e.g., produce high flow in the spring and low flow in the fall) and would allow us to evaluate if reservoirs be could be drawn down selectively (e.g., like what was done at pool 8 on the Mississippi River). This strategy assumes a very high priority on restoration of a more natural flow regime that would have substantial benefits to fish and wildlife and would have the affect of maintaining and sustaining environmental quality and tourism in the area.
- Improve and/or optimize public recreation and tourism opportunities throughout the study area and minimize adverse affects to current recreation users. This strategy

assumes a very high priority on maintaining and enhancing recreation opportunities associated with water based recreation.

- Optimize recreation or environmental outputs except under downstream river situations when major, potentially catastrophic, floods threaten the Aitkin/Sandy Lake area. Then, for short periods of time, operate to minimize the peak downstream river stages.

EVALUATION FACTORS: Table 1 below summarizes the evaluation factors that will be used to analyze and compare lake chain, systemwide, and existing condition operating plans. The objective of the evaluations will be to define the benefits, impacts, and tradeoffs associated with the array of alternatives considered.

Table 1 – Evaluation Factors to be Measures During Plan Formulation

Individual Lake Chain Evaluation Measures for improved operation	Systemwide Evaluation Measure for improved operation
<p>Recreational outputs associated with water control operations at this lake and the associated chain of lakes (taking into account only the immediate downstream areas).</p> <p>Flooding at this lake and the associated chain of lakes (taking into account only the immediate downstream affects).</p> <p>Natural habitat restoration- primarily accomplished by mimicking natural water regime for this lake chain.</p> <p>Erosion control and/or susceptibility and associated sedimentation at the individual lake chain.</p> <p>Tribal and cultural resources affects specific to surrounding the lake and area immediately downstream areas.</p>	<p>Systemwide recreational outputs associated with water control operations taking into account operations upstream versus downstream tradeoffs.</p> <p>Systemwide flooding affects throughout the study area, to the extent practical. Define physical constraints to better overall flood control (i.e., evaluate potential localized measures at Aitkin, Ball Club Lake, Wolf Lake, etc). Also, look at taking peak off the large flood events downstream using upstream storage.</p> <p>Systemwide / overall environmental quality and natural habitat restoration by mimicking natural water regime systemwide.</p> <p>Avoid and/or reduce erosion susceptibility and associated sedimentation systemwide.</p> <p>Systemwide, avoid or minimize adverse affects to tribal and cultural resources.</p> <p>Systemwide, avoid or minimize adverse affects to hydropower operations.</p> <p>Systemwide, avoid or minimize adverse affects to wastewater assimilation and water supply downstream (water intakes for power plants, urban areas, commercial users, etc)</p>

KEY PRODUCTS AND TASK DESCRIPTIONS:

The primary output of this QCP will be the completion of a systemwide ROPE study and associated Environmental Impact Statement. This study could recommend specific Federal projects and/or changes in water regulation related to Mississippi River headwaters reservoirs and downstream reaches of the Upper Mississippi River. This study and the associated EIS will be accomplished over a 4-5 year period.

Key intermediate phases to be accomplished as part of this study include:

1. Objective and goals identification and related resources inventories (use Partnering Group, Delivery Team, Task Forces, and Watershed/Lake Forum Groups to help identify, collect, and evaluate).
2. Coordination via EIS scoping, to define existing and future "without project" conditions and to define an array of alternative operating plans phase.
3. Modeling/evaluation and screening of alternatives (using economic, environmental, & cultural/political/legal criteria) – initial screening done with available information and judgments and final screening and plan selection done at a more detailed level of evaluation using new inventories.
4. Defining and coordination of a preliminary recommended plan and related mitigation plan (as needed), and preparing a NEPA assessment as a Draft ROPE Report phase (use USFWS support for endangered species, coordination act requirements, and ecosystems evaluations).
5. Public and Interagency issue resolution with conflicting interests and Final ROPE Report and associated EIS documentation (with programmatic agreements) phase, as needed.
6. Preparation of fully coordinated Programmatic Agreements to evaluate and protect cultural resources potentially affected by recommended the changes in operations.
7. Complete documentation of the final ROPE report and EIS.

Listing of key evaluations needed to accomplish this work include (Note: It is recognized that other items of work will evolve during the study and will be added to the study scope, as needed):

1. Identify relevant objectives, goals, constraints, and opportunities (utilize the considerable available public and interagency inputs obtained via the Headwaters Scoping Letter Report prepared in 1999 and Upper Mississippi River Reconnaissance Study prepared in 2001).
2. Establish a Partnering Group (via a partnering meeting) to provide policy and vision (with Tribal, MDNR, EQB, MHB, USFS, Audubon, MPCA, and COE members). This group will also come together at the screening alternatives and plan selection timeframes to discuss common ground, tradeoffs, synergy, and consensus. These partnering group meetings are likely to be lead by a trained conflict resolution facilitator and are likely to require 2-3 days each to be effective.
3. Establish resource interagency Task Forces for Cultural, Natural Resources, Flood Control/Erosion Control, Water Supply/Hydropower, Public Involvement and Education, and Recreation and Tourism. These task forces will be heavily relied upon to provide study related inputs regarding inventories and evaluations needed to screen alternatives

and assess impacts. They will also provide technical groups for reviewing the intermediate reports and aid in plan formulation evaluations. These groups will meet independently and periodically, as needed, to provide guidance and inputs to the delivery team.

4. Establish diverse stakeholders Lake Groups for each of the watershed lake chains to obtain local inputs and to provide regular status reports on the study progress. These lake groups will meet periodically, as needed, to provide guidance and inputs to the delivery team and to receive project status information.
5. Establish existing condition and without project conditions scenarios. This will involve utilizing existing pre-project data sources and coordinating intensively with cooperating interagency task force groups to establish the foundation for these scenarios. For example, A review of cultural resource survey coverage of the reservoir system to date will be conducted and an inventory of known cultural resources will be compiled and this data will be incorporated into a Geographic Information System and used together with other data sets to identify cultural resource priorities and assess the effects of reservoir operation on cultural resources.
6. Coordinate with and/or contract with Tribal entities to identify and fully evaluate and integrate the Tribal interest for each of the Headwater lakes. This information will be collected early in the planning process and fully integrated into the formulation and impact assessments. A work group will be established to address cultural resource issues in the headwaters, including Traditional Cultural Properties, and to review and assist in the formulation of cultural resource input for key study products. Prior to the partnering group evaluations screening of alternatives meeting, a meeting will be held with the tribes to define the tribal trust issues and to frame the alternatives from the tribal perspective. A similar tribal meeting will be held prior to the partnering group evaluations to discuss and select a "best plan". The tribal will also work with the delivery team towards development of a programmatic agreement that will lead to a comprehensive historic property management plan for the headwaters project. This group will also be relied upon to provide historical background regarding the Tribal interests and concerns regarding the Headwater Reservoir Projects and this will be included in the final ROPE study for context and better understanding regarding the Tribal issue associated with construction and operation of the project.
7. Development of detailed hydrologic models for use in simulating the operation and regulation of the dams and reservoirs in the Headwaters region. The specific modeling to be done will be supported through the Corps Institute for Water Resources and will rely on using both a optimization and simulation model. The optimization model, which will be supported by the Hydraulic Engineering Center of IWR, is called the PRM model. The simulation model to be used, which is supported directly through the Fort Belvoir location of the IWR, is a STELLA model. These models will be used concurrently to help define and describe tradeoffs and to compare alternative operating plans throughout the system. They will also be a powerful way to present information and findings to the agencies, stakeholders, and public.
8. Define hydropower power generation capacity, river flow requirements, and desired conditions for downstream hydropower plants and fully consider and integrate into project formulation evaluations and impact assessments.
9. Prepare economic inventories for lake areas and downstream reaches for all project outputs (including public and commercial recreation/tourism, commercial wild rice, flood reduction, drought economic impact reduction, low flow augmentation and water supply), and generate comparative economics models to simulate benefits associated

with a variety of possible operational alternatives. Keep the benefits attributable to alternative actions separated so that all benefit categories can be easily segregated for comparisons. Input screening data/evaluations into a matrix that will be used to compare and screen the alternatives.

10. Inventory existing Federal land ownership easements for all lakes in the system and determine the level and nature of easement rights. Determine if additional compensation is needed for hot spot areas and to allow for changes in operation. Determine additional acquisitions that may be needed to adequately compensate landowners if there are any impacts to them due to a change in Federal operations.
11. Conduct an inventory of the water control structures in the UMR Headwaters region upstream of Minneapolis, Minnesota. The inventory should include information on the storage/outlet capacity, condition, operations and other pertinent information about the major water control structures in the basin. The operational condition of these structures will be evaluated to determine if physical improvements are warranted (e.g., At Winnibigoshish Dam, the upstream slope of the embankment is a steep, grouted riprap slope about 800 feet long. Over time, grouted riprap cracks, allowing wave action to remove soil from beneath the riprap resulting in voids. We have performed some maintenance on the slope in the past but it is an ongoing problem that will have to be fully addressed some time in the future. Our most likely solution, not considering environmental benefits, would be to break up or remove the grouted riprap and replace it with riprap at a flatter slope. Slope protection is important because the embankment is constructed of very erodible soil. This may be a good project to try to combine environmental enhancement with embankment protection because, while it is not an immediate problem, something will have to be done in the future).
12. Prepare reservoir drawdown and operating bands inventories and evaluations and integrate into an array of alternatives via modeling using the Corps-developed HEC-PRM, HEC-5/HEC-RES, HEC-RAS, and other computer hydrologic model, as needed. These efforts will be used to simulate, compare, and optimize regulation of multiple reservoirs systemwide.
13. Determine the channel capacity of the river channels below the dams in the headwaters to determine flood control and fish and wildlife issues. We will have RAS models downstream of Winni, Leech, and Sandy which will be useful in determining channel capacities. Is there a need to determine channel capacities below other dams? Also, determine the dam discharge capacities. Channel capacity is related to flood control in two ways: 1) What is the non-damaging discharge a river reach can sustain during an actual flood event and thus when should the reservoir store water? 2) What is the available channel capacity available for releasing water from the reservoir to allow the winter drawdown to occur (in preparation for spring flooding). Knowing the channel capacity in various reaches of the river will also help evaluate habitat and other issues related to fish and wildlife. The channel capacity in some reaches is dynamic due to the effect of aquatic plants, floating bogs and ice jams. Also, determine reservoir storage capacity for pool elevations below the present operation limits for use in evaluating the effect of low water levels. Reservoir storage capacity data is available for the Present Operating Limits within each reservoir. However, storage capacity data for extremely low pool elevations may be needed to evaluate the effects of low water on fish and wildlife habitat and other uses both in the reservoir and downstream. Environmental surveys of lake and river reaches will be needed to obtain channel geometry, velocity, depth, substrate, cover, and water quality will be used in combination with other pertinent water and natural resources data. This data, in combination with extensive

coordination with resource agencies such as the MDNR, EQB, USFWS, USFS, BWSR and the USFWS, will provide opportunity and constraints information critical to project formulation. It is envisioned that interagency and special interest reps will participate in a natural resource work group. This work group will be relied upon for technical inputs to the project formulations and impact assessments. Data on channel geometry, stage/discharge relationships, substrate, cover, water quality, bathymetry, land use and drainage networks, and soils will need to be integrated into the plan formulation and assessment work.

14. GIS based Watershed Modeling System will be used to the extent that O&M and supplemental funding can be secured to fully inventory and distributively model overland flows to allow evaluation of alternative remedial solutions to water management/water quality problems.
15. A fully coordinated study approach is proposed which will require an extensive Public Involvement and education program that will be defined and coordinated via an interagency task force; Non-federal governmental entities, stakeholder, and the general public will be heavily involved in the cooperative formulation of alternatives and in the evaluation and selection of recommended revised operational plans (largely through lake advisory committees, workshops, and newsletters). To make the outputs more comprehensive and acceptable politically, many agencies will be asked to become actively involved in the inventory, evaluation/formulation of recommended actions (much of this will be accomplished via focus area working task forces and/or through participation on the study delivery team). The entities to be actively included in the formulation process include but are not limited to the Mississippi Headwaters Board, interested watershed management Districts, Lake Associations, the Leech Lake Bands, the Sandy Lake Band, and the Mille Lacs Band, numerous State of Minnesota agencies, the U.S. Forest Service, and special interest and environmental entities such as the McKnight Foundation and Ducks Unlimited, and the U.S. Fish and Wildlife Service.
16. Preparation of Programmatic Agreement for Cultural and Historical Resources. This will be coordinated fully through a cultural resources task force and will involve the State Historical Preservation Office and the State Advisory Committee for cultural resources...
17. The headwaters reservoirs are a regionally significant environmental and economic resource. Changes to the operation of these reservoirs has the potential to significantly impact the quality of the human environment. For this reason, an Environmental Impact Statement (EIS) will be prepared to address any recommended changes in reservoir operations as well as any programmatic initiatives identified by the ROPE study. Such initiatives might include structural changes in the dam structures, operational changes that would benefit fish and wildlife or improve human conditions around the lakes and/or downstream of the dams. Other actions to be evaluated and recommended by this ROPE study include environmental restoration projects that can be integrated into the existing Federal project. Because the ROPE study will likely include assessment of the Knutson Dam on Cass Lake, which is owned by the U.S. Forest Service, the Forest Service will be invited to participate in preparation of the EIS as a partner agency. Other groups, including the Minnesota Department of Natural Resources, Mississippi Headwaters Board, U.S. Fish and Wildlife Service, Minnesota Pollution Control Agency, Leech Lake Band of Chippewa Indians, Sandy Lake Band, and the Mille Lacs Lake Band will be invited to participate as cooperating agencies in preparation of the EIS. It is likely that the EIS would be a two-tiered document with the second tier of detail being provided after the ROPE study is completed. A mitigation plan will be prepared and fully coordinated, as needed.

18. As warranted, at the Draft Report stage, conduct a mediation session with the affected stakeholders to begin to facilitate resolution of issues and to refine the finalized/recommended operations plans.
19. Need to coordinate with non-Corps lake system operators to collect additional lake structures and Environmental inventories. Specifically, Lake Bemidji, Stump Lake Dam (Operated by Ottertail Power Company), Cass Lake, Knutson Dam (Operated by the U.S. Forest Service), Mud Lake Dam (Operated by the Minnesota Department of Natural Resources. NOTE: Without such information, any systemwide approach will be significantly impaired and may not be undertaken as part of this ROPE and EIS study.
20. Establish and maintain an up-to-date link to ROPE activities on the St. Paul District Web page.
21. Conduct Independent Technical Review using staff from the Rock Island District COE office. Utilize Corps Mississippi Valley Division Office to provide additional review and quality control.

Anticipated Spin-off Products from the ROPE:

There are many secondary spin-off products that will result from this ROPE. These products will take the form of a variety of inventories, undated models, improved coordination mechanisms, and possible Federal and/or State and local projects. A few examples of anticipated or potential study outputs follow:

1. Data and evaluation of existing flood prone structures in the Aitkin, Minnesota area that will be very useful in formulating local flood protection for that community.
2. Potential small flood reduction projects at Sandy Lake and other areas that have periodic flood problems.
3. Potential structural changes at the existing dams to allow for better future operations (e.g. Knutson Dam).
4. Updated hydraulic modeling and environmental data that will allow for future continuing authority environmental restoration projects.
5. Inventories of tribal interests in the study area that will allow for a more comprehensive understanding of tribal trust relationships.
6. Updated and/or more comprehensive natural resource inventories of natural and cultural resources for future use by all levels of Government (e.g., Leech Lake vegetation inventories).
7. Identification/inventory of erosion areas and potential small bank protection projects to protect public resources.
8. Improved interagency network to allow for better and more coordinated management actions at all levels of government.

Acquisition Strategy

Acquisition related to this study has included MIPR's to USGS, HEC / IWR and URS (via Sister District IDP contracts), sole source expert inputs from Cadmus Group and the Leech Lake and Mille Lacs Bands of the Ojibwas. Opportunities for solicitation via set-aside for competition among small businesses utilizing sealed bid procedures will be sought wherever applicable. Consultant/Planning contracts in the amount of approximately \$1.5 million over the life to the study are anticipated.

Coordination Groups	Key Members of Each Group	Purposes and Roles of Groups	Relationships with other Groups and Remarks
Partnering Group	Upper management Reps from prime local, State, Tribal, Federal Agencies, and other key stakeholders	Provides general study oversight and review, priority for funding, and resolves policy issues	Will provide the Corps District Engineer and US Forest Service Director with common ground recommendations and high level agency and stakeholder positions
Tribal Interests Group	Reps from Leech, Mille Lacs / Sandy Lake Bands of the Ojibwa Tribe/ nation, Dakota Bands, and Corps and Bureau of Indian Affairs representatives	To provide technical inputs regarding tribal interests into evaluation matrix and review comments	Works closely with the Corps PM/ Operations. PM/ District Engineer and USFS reps to establish a constructive nation-to-nation dialog and avoid tribal trust conflicts
Downstream Interests Group	Diverse group of interested citizens and officials from Lake Pokegama to the Twin Cities and inclusive of interests at Fort Ripley, Aitkin, and other downstream urban areas. Needs to be inclusive of environmental and sportsman groups interested in the river habitats. Also, need to include irrigation interests in the downstream reaches of the study area.	Provides non-technical inputs regarding downstream effects into the evaluation matrix and for use in the EIS. Review study reports from the downstream publics perspective.	Works closely with the study delivery team through the delivery team downstream interests champion/s.
Task Force Groups			
Environmental /Natural Resources	Reps from variety of natural resources agencies and environmental groups (Key reps will include DNR, COE, and USFS, Tribes, MHB, and Environmental Group representatives, etc).	To provide technical inputs regarding environmental matters into the EIS, evaluation matrix, to help collect relevant environmental inventories and set technical evaluation criteria, review reports, and identify environmental issues and opportunities	Works closely with the study delivery team through the delivery team environmental champion
Flood Control/Erosion Contro	Reps to include City of Aitkin, MHB, various lake association reps, USFS reps, MDNR, Fifty Lakes Association, Star Island Association, and Corps engineering and PM	To provide technical flood reduction and erosion protection inputs into the evaluation matrix, and report reviews regarding environmental issues and opportunities	Works closely with the study delivery team through the delivery team environmental champion and with the public involvement and education task force
Hydropower & Downstream Uses	Reps include Otter Tail Power, Minnesota Power, MDNR, Aitkin officials, MPCA, MHB, and Corps engineering and operations champions and Forest Service reps	To provide technical inputs into the evaluation matrix and EIS. Review reports from downstream perspective.	Works closely with the study delivery team through the delivery team downstream interests champion and hydropower and water supply representatives. Interfaces with the public involvement task force to education and inform downstream users...

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Cultural / Historic Preservation	Reps will include the Minnesota SHPO, tribal preservation officers, and Corps and USFS cultural reps	Develop baseline data for effects cultural evaluation for input into matrix and EIS, review of reports	Works closely with the Tribal interests group and the Corps and USFS cultural reps
Recreation and Tourism	Reps will include Minnesota Planning and DNR, University of Minnesota reps, regional tourism groups, and Corps and USFS reps	Develop baseline data for recreation and tourism effects evaluation for input into matrix and EIS, review of reports	Works closely with the study delivery team through the delivery team recreation champion. Interfaces with the public involvement task force to education and inform downstream users...
Public Involvement and Education	MDNR, Audubon, TNC, US Forest Service, COE, Leech Lake Band	Prepare and implement communications plan	Works closely with the study delivery team through the delivery team recreation champion. Interfaces with the volunteer citizen and task forces.
Lake Groups			
Leech Lake Chain	Diverse group of local interests representing users of the lake (includes representatives from Lake Association, chambers of commerce, sportsman groups, resorts, lakeshore owners, immediate downstream river users, other local stakeholders, and interested local citizens).	Forum for non-technical inputs regarding lake chain effects into the evaluation matrix and for use in the EIS. Acts as a means of communicating information to public regarding ongoing study progress. Review study reports from the local publics perspective.	Works closely with the study delivery team through the Corps park manager and/or USFS representatives and with the public involvement and education task force to assist with distribution of newsletters and media announcements.
Winnibigoshish / Cass Lake Chain	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>
Sandy Lake Chain	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>
Pokegama Lake Chain	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>
Cross Lake Chain	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>
Gull Lake Chain	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>	<i>Same as Leech Chain above</i>
Lake Bemidji	<i>Same as Leech Chain above</i>	Same as Leech Chain above except that Otter Tail Power representatives will need to assist in coordination associated with this group.	Same as Leech Chain above except that Otter Tail Power representatives will need to be coordinating much of this effort.
Project Delivery Team	Representatives from a number of functional offices in the St. Paul District Corps will serve on this team (see the complete list of team member in this QCP). In addition non-Corps representatives from the US Forest Service, MDNR, Tribal interests, MHB, the Audubon Society, etc, will serve on this working team.	Is responsible for data collection, evaluation, assessment, plan formulations, and documentation of the ROPE and the associated EIS. This group works together to evaluate, screen, and select alternative operation plans. It then, provides recommendations to the St. Paul District Engineer and the USFS Forest Director for their approval.	This working group will provide leadership and guidance to the various Lake Groups and Task Forces and will receive inputs from those groups for incorporation into the evaluation matrix and use this in the plan formulations and impact assessments. With the assistance of the Public Involvement Task Force, will maintain an up-to-date webpage for ROPE activities and announcements...

COMMUNICATION PLAN

Work in Progress

To be Coordinated with and by the Public Involvement and Education Task Force

Purpose

The purpose of this document is to enhance synergistic relations internally and externally and determine the information needs of all project delivery team (PDT) members and stakeholders – who needs what information, when they will need it, how it will be given to them, and by whom – by reporting and distributing specific project information effectively. The complexity of the project and impacts to the PDT and stakeholders will determine the appropriate level of detail for the Communications Plan for the project.

This plan should promote a work climate that is open, informed and actively engaged implementing the project and build effective relationships with external and internal partners, stakeholders and customers by keeping them informed of project issues and progress that impacts them. Effective communications will be timely, truthful, and open. Two-way communication is key to the project's successful implementation.

Responsibilities

Project Managers (Corps and Forest Service counterparts)

- o Work closely with the Public Involvement and Education Task Force to draft and implement a detailed public involvement and decision strategy and document
- o Initiate and facilitate the development of the Communications Plan
- o Incorporate the Communications Plan into the project's PMP
- o Serve as the primary Corps spokesperson for the project/program, with PAO support.

Public Involvement and Education Task Force (an interagency and stakeholder group)

- o Work closely with the project manager to draft and implement a detailed public involvement and decision strategy and document

Institute of Water Resources

- o Work closely with the project manager and the Public Involvement and Education task force to draft and implement a detailed public involvement and plan decision methods.

Project Delivery Team (consists of COE, Forest Service, MDNR, Tribal reps, and other stakeholder reps)

- o Assist PM in determining all stakeholder project communications requirements, including internal communications.
- o Ensure the PM and PAO are informed of potential key issues that may impact the delivery of the project/program, may engender congressional or media attention, or create a public controversy.

Public Affairs Officer

- o Assist PM in determining all stakeholder project communications requirements, including internal communications.
- o Provide Public Affairs advice, counsel and support to the PM and the PDT
- o Coordinate with the PM and PDT to develop specific products to publicize the project to internal and external audiences, including news releases, booklets, brochures, and web-based materials.
- o Field calls about the project from the media and coordinate with the PM and appropriate PDT members

- o Arrange communications-related training for PM and PDT members, to include media training and risk communications training.
- o Provide PA support at public functions such as meetings, signings, groundbreakings, and dedications.
- o Monitor media reports about the project and ensure the PDT members and the PM are kept apprised of media activity.

PM, Public Involvement and Education Task Force & PDT – Identify project stakeholders

- Who is affected by the project?
- Who affects the project?
- How, when and why?
- Consider geography, economics, quality of life, and political sensitivity when determining internal and external interested parties. Document this information for easy access by the PDT, review and update as needed.

PM & PDT – Identify the problems, concerns and/or issues (technical, institutional, political – tribal, Federal, state, local, Environmental, Economic/Fiscal, Cultural, Safety & Health, Legal, etc) and identify how they affect the project.

PM & PAO – Identify formal and nominal opinion leaders.

PM & PAO – Identify societal points of view that will affect the project/program. Identify historical/inherent prejudices that predominate.

PM & PDT – Listen, understand, and verify expectations, problems, concerns, and issues by talking with local sponsors/customers, reviewing existing documents, and talking with interest groups.

PM - Initiate the development of a draft communication requirements document that outlines and analyzes information needs of project stakeholders, then designs a communication strategy for each stakeholder with linkages to appropriate project milestones.

- o Determine key decision points in the project/study, according to information requirements/expectations and project schedule milestones.

PM – Note impacts, and risk (addressed in Risk Management Plan)

PM – Analyze the relationship between key decision points in the project and the stakeholders' concerns.

PM – Develop key messages for each key decision point that consider the following characteristics for an effective message (ensure a match with project goals and objectives):

- Timeliness
- Clarity
- Honesty
- Sensitivity
- Relevance
- Openness

Consistency

PDT - review and comment on draft stakeholder communication requirements document.

PM - consolidate PDT review comments of communications requirements document, and add enough additional information to address the recommended Communications Plan contents.

PM - submit Communications Plan to the PDT for review.

PDT - review the Communications Plan.

When the Communications Plan is finalized, the PM incorporates it into the project's PMP by pasting it into the appropriate data field in P3e.

PM & PDT – Evaluate effectiveness and document in Lessons Learned (DrChecks), as required throughout the life-cycle of the project.

Requirements and Criteria

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- Team Identification: The communications implementation is led by the Project Manager (PM) and executed by all PDT members. A list of the individual PDT members is included in the PMP.
- Stakeholders: identify the stakeholders that would be affected by the project.
- Issues: identify project issues as valid and adjust by communication surveys, employee and stakeholder feedback, and mid-level and first line supervisors.

Issue #1 – (i.e. Educate workforce on what PMBP is and the value of PMBP, particularly for them: Inform people so they can see what PMBP means to them and what will be required from them personally. The curriculum's introduction and Course I address this. The reason this issue is listed here is because Course 1 will need to be reinforced and restated via many vehicles. Author Stephen Covey says that people learn after something has been said seven times and in seven different ways.

Issue #2 – (i.e. Help the workforce outside the PM stovepipe see their role in PMBP and overcome the perception: "The project management business process is for project managers. If I'm not a PM, it has nothing to do with me."

- Audience: identify the audience for the project.
(i.e. mid-level and first line supervisors, PDT, customer, partners, stakeholders, Congressional members, administration representatives, field employees, etc.)
- Key Messages: identify key messages for each decision point that match with project goals and objectives.

(i.e. PMBP is for everyone, including you, because everything we do is a project and every Corps employee is a member of a team; PMBP is here to stay and won't go away when the current Chief of Engineers does; the Project Management Business Process is how we deliver quality projects in the U.S. Army Corps of Engineers.) Other key messages received from PAO include (use where appropriate):

- We will keep you informed. (Media, Public, and Academics)
 - We are highly trained, capable public servants. (Public)
 - Safety is our paramount concern. (Public and Navigation Industry)
 - We will protect people, their property and the environment. (Environmentalists)
 - We will coordinate with all interested parties. (Environmentalists, Fishing and Navigation Community)
 - The Corps of Engineers is a team player. (Sponsors)
 - We want your participation in the process. (Public, Navigation, Environmentalists, Fisherman, Recreationists)
 - We will work closely with your own experts and decision makers. (Municipalities, Environmentalists, and Business Communities)
 - We will take the media through the study site and keep you up-to-date. (Media, Public)
 - We will hold a public forum to listen to you and share information. (Public)
- Tactics: identify and accept tactics for consistency of purpose and on-voice communication and implementation.

(i.e. workplace discussion, newspaper articles, strategic web-sites, success stories from colleagues, etc.)

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- Expected Outcomes: identify outcomes and changes identified by feedback to close identified gaps.

(i.e. People understand that the PMBP is an environment that applies to everyone and not just PMs; more active team membership, contributions; identify methods to best reach audiences; behavior changes, more teamwork, etc)
- Costs: Costs for project implementation is mainly PDT time and travel. These costs are currently being captured. Communications will focus on producing and maintaining a one-voice consistency of messages.
- Measures: identify measurement for each issue identified above by surveys or other means such as feedback from commanders, middle managers, team members, and stakeholders.

Measure for Issue #1:

(i.e. Educate workforce, customers, partners, and stakeholders on what PMBP is and the value of PMBP.

- What percentage of Corps employees have received information relating to PMBP?
- What percentage of customers has received information relating to PMBP?
- What percentage has reviewed this information?
- What percentage understand the information?

Measure for Issue #2:

(i.e. Help the workforce, customers, partners and stakeholders outside the PM stovepipe see their role in PMBP and overcome the perception:

- What percentage has had at least one conversation with his or her immediate supervisor about PMBP?
- What percentage feels their opinions and/or concerns regarding PMBP have been heard?

- Opportunities: identify opportunities to provide communications to PDT, customers, partners, and stakeholders.

The Corps of Engineers point-of-contact shall be Ed McNally, Project Manager and the point-of-contact from the U.S. Forest Service shall be Chantell Cook. Communication between the Corps and the Service shall be in the form of telephone calls, emails, meetings and letters. The Corps of Engineers study team will communicate through emails, telephone, personal contact and team meetings. The project delivery team includes both Corps of Engineers and Service representatives. Team meetings will be open to the entire project delivery team. Contact will be made, at a minimum, of once per month. Communication with the general public may be made by either the Corps of Engineers, or the Service, as appropriate.

News releases on this project will be coordinated with Public Affairs by the PM. At a minimum, a news release will be made when the contract is complete and the official opening is scheduled.

A formalized Communications Plan will be prepared by the Project Manager with substantial assistance from the Public Involvement and Education Task Force, the Project Delivery Team, and the District Commander and Forest Supervisor. This document will be placed on the ROPE website when it is completed.

The planned coordination associated with formulation and public involvement activities associated with the ROPE is to be accomplished via a number of "coordination groups" with varying roles and responsibilities and will involve extensive public involvement and an education program. The interagency group most involved in establishing the public involvement and education agenda associated with this plan is the Public Involvement and Education Task Force. The membership and roles of other group

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involved will evolve as the process unfolds and is that summarizes aspects of these coordination groups follows:

Activity/Milestone	Date	Resource	Key Message
PRB	Monthly	PM, PDT	Update project minutes to PRB board, Branch Chiefs and District Commander
PM Meetings	Monthly	PM, PDT	Update project milestones to District Commander and mid-level and first line supervisors
Team Meetings	As needed		
Sponsor Meetings	As needed		
Public Meetings			
Congressional Briefings	Annually	PM,	
Public Notices			
Fact Sheets (CAP, Congressional, etc)		CAP Manager, PM, Programs	
Testimony Preparation Review (TPR)			
Strategic Web-Sites		PDT, PM, PAO	
CBD Announcements / Synopsis			
Roll-Out Plan			
Project Ceremonies / Groundbreakings			
Agreement Signings (FCSA, PCA, PED, etc)			
Dedications			
School Meetings, Local Libraries, Community Group/Organizations, etc.			
Radio/TV			
Daily/Weekly newspapers / Organizational Newsletters			
Preconstruction Meeting			
Town Hall Meetings			
Partnering Meeting			
Emails			

A Communications Plan consists of three parts--

- (1) Research
- (2) Rollout Plan
- (3) Lessons Learned/Next Steps.

Research:

- a) Describe the purpose of the project, issue or event. (Why are we doing this?)
- b) Describe the desired outcome. (What will success look like? How is it connected to the strategic objectives? Use measures if appropriate.)
- c) Form the PDT. (Who will be involved? Who are the subject matters experts? Who are spokespersons? Will Division and HQ USACE play a role and need to be involved? What is sponsors role?)
- d) Develop a coordination list/schedule. (Who needs to approve the plan? Does it need DA/CEQ/OMB approval? Do sponsors need to be aware?)
- e) List basic communication and reference documents that are being used. (This may include conducting original research and/or gathering secondary research.)
- f) What are relevant lessons learned?

Rollout Plan:

- a) Key messages - What do people need to know and remember?
- b) Stakeholders and their role identified - What are their key interests?
- c) Plan with alternatives - (How will we communicate? What are the different alternatives? (Include 2-way communication whenever possible.) What are the risks and benefits of each?
- d) What is our communications posture -
 - Passive (ready to respond to questions)
 - Active (working to get the word out and solicit feedback)
- e) Timetable -
 - i) Who does what and when
 - ii) Congressional notification
 - iii) Stakeholder notification
 - iv) Spokespersons identified with contact information and areas of expertise
 - iv) Media strategy
 - v) Communications documents:

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- (1) News release (Shorter is better. Use "important points to remember" and/or "Official statements" as attachments. Include quotes.)
- (2) Key Messages and talking points - for communicating with stakeholders, the public, the news media, and employees
- (3) Anticipated questions and answers (five you hope you get ; five you don't want to be surprised by)
- (4) Fact sheets
- (5) Illustrations and photos
- (6) Web documents - hot topics
- (7) Maps
- (8) Public meetings, press tour/conference, other events

Lessons Learned/Next Steps:

- a) Media analysis - A brief recap of the coverage we got, an analysis of whether we got our message out and the tone of the stories.
- b) Lessons learned - What did we learn from this communication activity-what worked and what didn't work?
- c) Next steps - What are the next steps that are required or expected from the communication issue/event just completed?

PRODUCT SCHEDULES / MILESTONES & STUDY COST:

In spite of substantial efforts to solidify cost-sharing sponsors to accomplish a cost shared comprehensive study for the Headwaters area, there are no formalized Non-Corps Sponsors for such a study. However, efforts are still underway to see if non-Federal or local Sponsors can be relied on to informally provide staff assistance, financial resources, needed inventories and analysis, or other related cooperation that would benefit this ROPE Study. In that regard, a Support Agreement with the U.S. Forest Service has been formalized in May 2003 and modified in June 2004. These agreements allow partnering and cost sharing of the cost of completion of the ROPE Study with 85% of remaining cost being Corps and 15% being USFS cost (after the effective date of May 2003). It is currently estimated that the Forest Service contributions to complete this Study and EIS will be approximately \$230,000 (see the Fiscal Year Funding and Functional Work Breakdown Table on page 19 for details). In addition, an informal agreement with the Mississippi Headwaters Board (MHB) has been reached to have them assist in the public involvement associated with the ROPE study. Also, staff efforts are being provided by the MDNR, MPCA, and Ottertail Power Company to commit to cooperative inventories of the areas of the non-Corps lakes within the system. Participation of these entities and other local government and local interest groups will be sought in establishment of focus and stakeholder work groups.

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The inventory, analysis, project plan formulation, and environmental documentations needed for this study to comprehensively optimize the headwaters reservoirs began in FY01 and is expected to extend through FY06. The scope of work will evolve as the study unfolds and will be re-evaluated each fiscal year with the assistance of cooperating agencies... The total cost of this work is anticipated to be approximately \$3.5 million for the Corps of Engineers and \$355,000 for the US Forest Service O&M – not including supportive non-federal staffing participation. It is now anticipated that an additional \$200,000 to \$500,000 of non-Federal staff cost will be contributed by these other entities during the course of this study.

The combined Forest Service and COE O&M funding of this study follows (note Service funding was initiated in FY03); \$660,000 in FY01, \$400,000 in FY02, \$938,000 in FY03, \$705,000 in FY04, \$816,000 in FY05, and \$377,000 in FY06. This funding has increased in magnitude in response to evolving study inventory and evaluation requirements and is subject to funds availability and potentially changing priorities for Corps and Service O&M funds.

A Gantt chart showing the deliverable and schedules associated with this study is attached as attachment 1 to this QCP.

The key deliverables and milestones schedule by fiscal year for completing key aspects of this QCP are shown as follows (**note**: these dates are evolving during the study and as funding available each year is solidified):

FY01:

Initiate Study – Assign Project Delivery Team (PDT)	Jan 2001
Initiate inventories for Hydraulic, Environmental, and Economic data	Mar 2001
Mobilize PDT and generate initial QCP	May 2001

FY02:

Form, Mobilize, Conduct initial series of agency and public workshops	Nov 2001
Complete Prel. scoping	Dec 2001
Coordinate Revised QCP within District and with Partnering Committee	Jan 2002
Conduct initial Partnering Charter Meetings	Feb 2002
Conduct the initial Task Force Meetings	May 2002
Conduct the initial Lake Forum Meetings	June 2002

FY03:

Complete Structures Inventories in Study Area	Dec 2002
Formalize MOU between Corps and Service to partner ROPE	April 2003
Initiate EIS Scoping (Notice of Intent)	Jul 2003

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Complete preliminary Hydraulic baseline models (outputs in HEC5)	May 2003
Initiate PRM Optimization and Stella Simulation Modeling work	May 2003
Initiate Tribal Inventories	June 2003
Prepare Sample Stella Models for Task Forces & Citizen Group Mtgs.	July 2003
Generate initial penalty and rewards data for input into PRM model	Sept 2003
Initiate ground water model to evaluate potential affects	Sept 2003

FY04:

Obtain economic inventories for possible quantifiable project outputs	1/8/04
Complete initial VE type eval. of Aitkin area and present to local stakeholders	1/21/04
Complete update of QCP/PMP and Coord. With USFS	9/20/03
Complete prel. EIS scoping process and identify alternatives	6/5/04
Define/Quantify without project and future w/o project conditions	6/4/04
Establish comparative economic benefits evaluations model (curves)	9/6/04
Prepare HEC Hydraulic models and calibrate	6/14/04
Prepare prel. HEC-PRM and STELLA Models (STRAWMAN)	7/8/04
Conduct Tribal meeting to identify the tribal interest and trust associated with array	7/19/04
Complete Citizen group and Task Force Reviews and Inputs to models	8/20/04
Coord. Prel. Matrix info with task forces, advisory committees and revise as needed	8/13/04
Complete ground water affects evaluation modeling (USGS inputs)	11/1/04
Complete EIS Scoping Report	9/30/04

FY05:

Complete update of QCP/PMP and Coord. With USFS	Jan05
Conduct Circle A and B model reviews (hold conference)	April05
Conduct Partner Group Meeting to define direction for screening of Alternatives	May05
Complete initial evaluations of benefits and tradeoffs for array	May05
Complete documentations for Screening Letter Report	Jun05

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Conduct the Feasibility Scoping Meeting	Jun05
Conduct Tribal meeting on prel. Findings	Jun05
Conduct Interagency/Public Information and Education Meetings	Jul05
Define and fully coord. Programmatic Agreements for EIS	Sep05
Fully coordinate prel. Finding with agencies and Partnering Group	Sep05

FY06:

Identify Recommended Plan and prepare Operational Aspects, plates, quantities, and details	Dec05
Complete inhouse draft Report and EIS	Jan06
Conduct Tribal meeting to define tribal interest and trust issues associated with final array	Jan06
Complete SHPO Coordination	Jan06
Conduct Partnering meeting session to provide additional insight on selection of a plan	Jan06
Conduct ITR, internal reviews, task forces, advisory committees, and MVD reviews	Feb06
Respond to EIS comments, ITR comments, task force and advisory committee comments, etc.	Mar06
Conduct Alternative Formulation Briefing	Mar06
Print Draft Report and EIS - then, transmit it to Agency	May06
Conduct Public Meeting and interagency/stakeholder meetings	Jun06
Conduct Feasibility Review Conference	Aug06
Revise/Complete Final ROPE Report & EIS	Aug06
Revise Report = Print Main, EIS, appendix report	Sept06
Print and transmit Final ROPE Study and EIS	Sept06
Obtain Approvals from Higher Authority, as needed	Nov06
Begin to operate under the new ROPE	Dec06

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	Organizations	ACTUAL TOTALS for FY 2001-2003	ACTUAL TOTAL for FY 2004	PROJECTED COSTS for FY 2005	PROJECTED COSTS for FY 2006	TOTAL EXPECTED STUDY COSTS
ED	Tech Svcs & FO	30.2	22.6	0	0	
ED-H	Front Office	1.1	1.1	0	0	
	Hydraulics	226.1	125.1	34.0	27.0	
	Hydrology	2.2	0.0	0	0	
	Water Control	83.6	104.7	60.0	35.0	
ED-D	Tech Sup & FO	1.2	0.0	0	0	
	Geotech-Geology	1.4	4.4	4.0	2.0	
	Cost-Specs	1.4	24.3	1.0	2.0	
	General	1.1	0.0	3.0	1.0	
	Mech-Elec	0.0	0.0	0	0	
	Structural	0.0	0.0	0	0	
PM	Front Office	2.0	7.0	5.0	5.0	
	PM-A & PM-B	222.1	134.6	175.0	130.0	
	Environ & Econ	279.5	127.0	175.0	140.0	
CO	Ops & Tech Sup	19.8	25.8	44.0	31.0	
	Physical Support	0.2	0.0	0	0	
	Real Estate	4.2	4.8	10.0	4.0	
	CT	3.4	9.0	4.0	1.0	
	Other In-House	0.0	6.0	0	0	
	OTHER GOV	233.8	62.0	130.0	40.0	
	PVT. SEC. CTS.	687.7	164.8	130.0	0	
	Contingencies			<u>50.0</u>	<u>32.0</u>	
	Sub Total Corps	1801.1	822.9	825.0	450.0	3,899.0
	Sub Total Forest Service Inkind Services (after Sept03)	25.0	30.0	<u>55.0</u>	<u>35.0</u>	<u>145.0</u>
	Sum Total (COE and FS expenditures)	1,826.1	852.9	880.0	485.0	4,044.0

Study Costs Spreadsheet (Costs shown in \$1,000's)